

Remarks

Claims 1-22 are pending in this application. Original claims 1-22 were rejected. The invention is believed to be patentable. Claims 1, 8, and 14 have been amended to more particularly point out the invention. Specifically, these claims have been amended to point out that in the case where said IP data packet is not revised, said IP data packet is routed for receipt by a default gateway having the gateway machine address specified in said IP data packet. The Examiner has objected to the drawings and specification. Appropriate corrections have been made.

Regarding the drawings, Figure 1a has been amended to better illustrate the ISP/default gateway. Figure 3 has been amended to better illustrate the revised data packet. Figure 2 has been amended to better illustrate the 2-bit frame type, hardware type fields and ARP operations field. Figure 2 has also been amended to better illustrate the pulling of addresses from the ARP packet. The Examiner has suggested that Figure 2 be designated as prior art. Figure 2 has been amended to more clearly illustrate the pulling of addresses from the ARP packet, which is a feature of the invention. Accordingly, Figure 2 has not been amended to add a prior art designation. Figure 4 has been amended to correct labels for elements 402 and 404. Figure 4 has also been amended to correct the label of element 406. These amendments to the drawings are believed to overcome all drawing objections.

Regarding the specification, Applicant believes that a proper Abstract was filed with the application. Nevertheless, Applicant has provided an amendment to add a proper Abstract.

Some additional amendments have also been made to address the objections listed in paragraph 8 of the Office Action. Figure 1b has been amended to specify the LAN interface and WAN interface. The arrows in Figure 2 indicate the pulling of addresses from the ARP packet, which is now labeled. Figure 5 has been amended to provide MAC addresses.

Page 6 has been amended to indicate that the table includes, for example, MAC addresses and IP addresses for each CPE on the local network. Page 8 has been amended to recite that the first router interface is a local area network (LAN) interface, and the second router interface is a wide-area network (WAN) interface. Page 14 has been amended to recite that the periodic verification of the IP addresses could occur on any suitable basis, with five minutes being one example. Page 14 now further recites that in this way, the disconnection of an IP device is detected at the next verification, the length of period being a design choice as understood by one of ordinary skill in the art.

The amendments made to the application are believed to overcome all objections raised by the Examiner, and are believed to better emphasize some of the patentable aspects of the invention.

Original claims 1, 2, 6, and 7 were rejected under 35 U.S.C. § 102(e) as being anticipated by *Yoshida et al.* (U.S. Patent No. 5,987,524). Original claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Yoshida* in view of *Liu et al.* (U.S. Patent No. 6,574,664). Original claims 3-4, 8-11, 13-17, and 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Yoshida* in view of *Jain et al.* (U.S. Patent No. 6,047,325). Original claims 12 and 18-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Yoshida* in view of *Liu*. It is noted that the anticipation rejection relies on *Yoshida* and that each obviousness rejection relies on *Yoshida* as the primary reference. For reasons further explained below, *Yoshida* is believed to be deficient. As well, secondary references *Liu* and *Jain* fail to overcome the deficiency, and the invention is believed to be patentable over *Yoshida* alone, and patentable over any of the combinations involving *Yoshida*.

The application includes three independent claims, namely, claims 1, 8, and 14.

Claim 1 recites, "In an internal network comprising a plurality of customer premises equipment (CPE) each having an associated IP address and machine address, a method of routing IP data packets comprising" certain specific actions. The method

comprises, for IP data packets received from the internal network, comparing a destination IP address of a received IP data packet with IP addresses stored in a routing table. The method further comprises, when said destination IP address matches one of said IP addresses stored in said routing table, replacing a default gateway address of said IP data packet with a machine address corresponding with said one IP address from said routing table to create a revised data packet. The method further comprises routing said revised data packet to said internal network for receipt by another of said CPE. Said another CPE has said machine address corresponding with said one IP address.

Amended claim 1 further recites that in the case where said IP data packet is not revised, said IP data packet is routed for receipt by a default gateway having the gateway machine address specified in said IP data packet.

An advantage of this claimed arrangement is that certain data packets are revised and routed to the internal network as opposed to proceeding to the default gateway which was initially specified in the IP data packet. In this way, IP data packets having a destination IP address noted in the routing table are revised to replace the default gateway address with the machine address corresponding with the matching IP address of the routing table. This innovative approach reduces external network requirements.

Yoshida fails to describe or suggest the claimed invention. *Yoshida* does describe a local area network system and router unit. *Yoshida* is about preventing illegal use of other people's IP addresses. *Yoshida* notes that Dynamic Host Configuration Protocol (DHCP) does not serve as a protection device against deliberate change of IP addresses.

One of the main concepts presented by *Yoshida* is illustrated in Figure 4 and described in column 6. The Examiner has made reference to these portions of *Yoshida*, but Applicant believes *Yoshida* fails to suggest the claimed invention. Specifically, *Yoshida* fails to suggest replacing a default gateway address of an IP data packet with a machine address corresponding with the destination IP address to create a revised data packet and routing the

revised data packet to the internal network, and in the case where the incoming IP data packet is not revised, routing the IP data packet for receipt by a default gateway having the gateway machine address specified in the IP data packet. Put another way, claim 1 recites revising certain data packets by replacing the default gateway address and then routing them to the internal network, while unrevised data packets are routed for receipt by the default gateway (when the default gateway address is not replaced).

Yoshida does describe, as shown in Figure 4, an ARP request S1, followed by an ARP reply S2, followed by a data transmission S3. Following transmission S3, the data packet is routed to the destination subscriber terminal when the terminal is verified as an authorized member of the LAN system, and otherwise is discarded. *Yoshida* fails to describe any replacing of the default gateway address of an IP data packet followed by routing of the revised packet or in the case where the packet is not revised, routing the data packet for receipt by the default gateway. In contrast to the concept of the invention, *Yoshida* is about verifying that the destination subscriber terminal is an authorized member of the LAN system prior to forwarding data packets. *Yoshida* fails to discuss any specific actions relating to a default gateway address in the IP data packet, let alone suggest the specific activities set out in claim 1.

Put another way, claim 1 describes selectively revising data packets and routing them to the internal network, with unrevised packets getting routed for receipt by the originally specified default gateway. *Yoshida* only describes verifying the destination subscriber terminal prior to packet forwarding.


All independent claims in the application recite the particular features of claim 1 discussed above. Accordingly, all claims are believed to be in condition for allowance.

Regarding the secondary references, *Liu* and *Jain*, these references fail to overcome the deficiency of the primary reference. *Liu* describes an apparatus and method for IP and MAC address discovery at the process layer. *Jain* describes a network device for

supporting construction of virtual local area networks and arbitrary local and wide-area computer networks. Neither secondary reference overcomes the deficiency of *Yoshida*, and no combination of the applied references suggests the claimed invention.

A check in the amount of \$110.00 is enclosed to cover the Petition fee. Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,
GREGORY S. FISHER

By 
Jeremy J. Curcuri
Reg. No. 42,454
Attorney/Agent for Applicant

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BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351

Amendments to the Drawings:

The attached sheets of drawings includes changes to Figs. 1a, 1b, 2, 3, 4, and 5. These sheets, which includes Figs. 1a, 1b, and 2-6 replace the original sheets including Figs. 1a, 1b, and 2-6.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes